REMARKS

In response to the Office Action dated September 6, 2006, claims 5 and 6 have been amended. Claims 1-16 are now active in this application. No new matter has been added.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103

Claims 1-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Pinson (USPN 6,323,987) in view of Huang et al. (An Edge Based Visual Tracking for Target within Complex Environment).

The rejections are respectfully traversed

The Examiner maintains that Pinson discloses "determining at least one component (independent claims 1, 13) and a plurality of components (independent claim 15) in the image according to an edge direction of connected pixels within the component", referring to column 10, lines 18-36 of Pinson. However, this is incorrect. Column 10, lines 18-36 of Pinson describe:

> As embodied herein and referring to FIG. 8, *the controller 30* receives the image to be displayed and *determines*, in accordance with the instantaneous position function 102, *the coordinate position of the center of the displayed image in reference to the array map 42.* The instantaneous position represents the pitch and yaw electronic positions. *The microprocessor 56* further *determines the position of the center of the displayed image relative to the edge coordinates of the array map 42.* This can be done as follows. The distance from the center of the displayed image to the central coordinate of the array map 42 may be calculated (since *the central coordinate has a fixed distance to the edge coordinate*) or the distance from the center of the displayed image to the nearest edge coordinate may be calculated. Other similar methods may be used to determine the position of the center of the displayed image relative to edges of the array map 42. (Emphasis added)

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The edges referred to in Pinson are the actual edges of the array map 42, which have a fixed distance from the central coordinate of the array map 42. What is being described in Pinson at the above identified portion is determining the position of the center of the *displayed image* relative to edges of the array map 42. The edges of the array map 42 that are referred to have nothing to do with determining a component in the image according to the edge direction of connected pixels *within the component*. The present application clearly describes that **components** are a group of connected pixels within the image that have the same edge direction and that a component may or may not be a target. A displayed image of Pinson is not a component, but may contain components such as the target. However, there is no disclosure or suggestion in Pinson regarding determining a component of the displayed image according to an edge direction of connected pixels. Furthermore, actual *edge direction* of connected pixels is not described in Pinson.

In actuality, Pinson describes that the operator selects the target and places or superimposes the tracking gate on the target by using cursor controller 118 (see column 11, lines 66-68). While Pinson recognizes that designation of the target may be performed by an image recognition system to select and then lock onto the target (column 16, lines 3-5), there is no disclosure as to how this is done. The description in Pinson from column 15, line 63 to column 16, line 9 clearly evinces that Pinson does not disclose anything regarding determining a component in an image having a target, let alone that such determination is made according to an edge direction of connect pixels within the component.

The Examiner maintains that Pinson discloses "updating the track based on the associated

component to determine current target position" at column 12, line 57 to column 13, line 10.

However, this is incorrect also. Column 12, line 57 to column 13, line 10 describes:

> Once the difference in the pixel position of the correlation point in the
> successive frames has been calculated, the correlation tracker 106 compares this
> difference with a predetermined threshold value. This threshold value determines
> whether the missile has to be moved to compensate for this difference or the
> image frame itself has to be adjusted to stabilize the image on the display. For
> example, if the missile has not moved and the correlation point has not moved but
> the correlation point does not match in the successive frames (the difference is
> less than the threshold value), then vibrations from the missile has undesirably
> moved the correlation point of the present image frame from its previous position
> in the previous frame. To correctly display the present image frame, the present
> image frame is adjusted using vector analysis, for example, so that the correlation
> point matches its position in the previous frame. From this, a stable scene can be
> achieved on the display. In other words, changes in the position of the present
> image frame on the CCD array 18 in reference to the previous frame are removed
> such that the present scene overlays (matches or correlates) the previous scene.

Claim 1 clearly delineates that there a plurality of predetermined tracks and the updated

track is the track associated with the target position. The Examiner already recognizes that

Pinson does not disclose *a plurality of predetermined tacks* with respect to which the one

component is associated with based on the edge direction of the component, let alone that one of

the plurality of predetermined tracks is associated with the target position.

The Examiner contends that Huang et al. discloses "associating the at least one

component with one of a plurality of predetermined tracks", at the abstract and section 2.1 and

"where at least one track being associated with the target position, based on the edge direction of

said component", at section 2.2. However, what Huang et al. discloses is using a matching

method to determine the location of a target and the matching method is based on the distribution

of edges in both a template and an object image. This matching method requires the convolution

of the distribution of edges stamps of the template with that of the object image according to the convolution on page 1994, and the location (i_M, j_M) where the value $Convol(i_M, j_M)$ is maximized represents the location where the target exists. There is nothing disclosed or suggested in the abstract and sections 2.1 and 2.2, or anywhere else in Huang et al., that there are *a plurality of predetermined tracks, where at least one track being associated with the target position,* with respect to which the at least one component is associated based on the edge direction of the component.

With respect to independent claim 10, the Examiner maintains that Pinson discloses the "a processor for generating a plurality of associations between a component determined from an input image including a target having a target position, and at least one predetermined track from a track file" at column 1, line 45 to column 2 line 25. However, Pinson has no track file from which there is at last one predetermined track, let alone that *a plurality of associations* between a component, determined from an input image, *are generated.* This is clear from the disclosure of Pinson in that the operator selects the target and places or superimposes the tracking gate on the target by using cursor controller 118 (see column 11, lines 66-68). With such action by the user, there is no need to generate the plurality of associations as recited in claim 10.

The Examiner further maintains that Pinson discloses the "processor to select one of the plurality of associations of the component and the at least one track based on said selected association satisfying a predetermined threshold to determine current target position" at column 12, line 57 to column 13, line 11. However, as noted above, Pinson does not disclose "a plurality of associations between a component determined from an input image including a target having a target position, and at least one predetermined track from a track file", as there is no component

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determined from the input image since the operator selects the target and places or superimposes the tracking gate on the target by using cursor controller.

Finally, the Examiner contends that Huang et al. discloses "at least one track being updated with the associated component in the track file in response to the selection of association" at section 2.2. However, there is no disclosure in Huang et al. of how a template is built or how such template is updated. Without such disclosure there is no reasonable basis to presume that "template updating" includes "one track being updated *with the associated component in the track file in response to the selection of association*".

Thus, independent claims 1, 10, 13 and 15, as well as dependent claims 2-9, 11, 12, 14 and 16, are patentable over Pinson and Huang et al., considered alone or in combination.

It is noted that the Examiner refers to building a template as "generating a track file including the plurality of tracks" (claim 5). However, Huang et al. has only a reference to "building template" in section 2.2, but no disclosure as to how the template is actually "built". If the Examiner disagrees, it is requested that the specific location of Huang et al. that discloses how a template is built be identified. At any rate, claim 5 has been amended to delineate:

> updating the track file includes
> setting said one of the plurality of tracks to an established track when said predetermined threshold is satisfied, and
> deleting said one of the plurality of tracks when said predetermined threshold is not satisfied.

Clearly, Huang et al. has no disclosure regarding either setting a track to an established track or deleting on the tracks depending on satisfying and not satisfying a threshold.

Claim 6 has been amended to delineate:

setting said one of the plurality of tracks to an established track occurs when a number of times said one of the plurality of tracks is associated with a component exceeds said predetermined threshold in a time period, and deleting said one of the plurality of tracks occurs when the number of times said one of the plurality of tracks is associated with a components does not exceed said predetermined threshold in the time period.

Neither Pinson nor Huang et al. disclose the features now recited in amended claim 7.

In view of the above, the allowance of claims 1-16, as amended, is respectfully solicited.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise Reg. No. 34,523 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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